that birds have no tendency whatever to torpidity, which seems to result from diminished nervous irritability, occasioned by a low degree of temperature, more or less directly affecting numerous important vital functions, as circulation, respiration, and necessarily the evolution of animal heat; also digestion, secretion, assimilation, absorption and excretion.

That the periodical birds which visit this country in autumn are not rendered torpid by cold will be readily acknowledged, as they are known to quit the north of Europe on the approach of winter for more genial climates in lower latitudes; and it has been shown that even in Britain the redwing frequently falls a victim to severe and protracted frosts. Why then should any reluctance be felt to admit that the periodical birds, whose appearance in spring is attended with so many pleasing associations, retire from this kingdom on the return of the cold season to more southern countries, where a suitable temperature and an ample store of food are to be found? I have endeavoured to prove by experiment that they do not become torpid; and I may add, that a premium of five pounds a head, publicly offered for birds in a state of perfect torpidity, when I resided at Crumpsall Hall, failed to produce a single individual, though, for a fifth part of the sum, I know that I might have been abundantly supplied with torpid bats and hedgehogs.

Thus it is seen that experiment, observation and analogy are all in favour of the conclusion at which I have arrived, namely, that there is no physiological tendency whatever in birds to become torpid.

XL.—*Descriptions of new British Coleoptera, with additional Notes.* By James Hardy, Esq.

Rhyzophagus cyaneipennis, *Hardy.*

Niger, nitidus, convexus, capite crebre thoraceque minus dense punctatis, illo triangulari, hoc subquadrato-globoso; elytris cyaneis minus profunde punctato-striatis; pedibus antennisque rufis, his apicibus nigris. Long. corp. lin. 1½.

Shining: head black, short, much narrower in front, thickly and finely punctured: eyes rather prominent: antennæ ferruginous, as long as the thorax; club small, black, piceous at the apex: thorax black, subquadrate, globose, convex, punctured less thickly but more coarsely than the head: scutellum black: elytra convex, cyaneous, with a very narrow brown line along the margins and the suture, slightly depressed behind the scutellum, finely punctate-striate; striæ rather shallow, deepest towards the base; punctures confused at the apex; there are a few confused interstitial

punctures round the scutellum; the base of the elytra is about the breadth of the middle of the thorax: legs with the femora strongly constricted before the apex; the tibiæ attenuated at the base, subclavate at the apex; the tarsi paler, ferruginous, with the last joint spatulate, elongate and attenuated.

I took a single specimen under the bark of *Alnus glutinosa* on the margin of the river Derwent, near Gibside, in June.

Obs. The projecting eyes, black and rather small club of the antennæ, rounded thorax, cyaneous elytra, and the convexity of the insect, are its obvious features.

Aphodius subalpinus, *Hardy.*

Niger, nitidus, clypeo emarginato, punctato rugoso, tuberculis tribus, medio subcornuto; maris thorace convexo rotundato-ampliato disco punctis subtilibus minus frequenter dispositis, feminæ subquadrato angustiore punctis mediis frequenter obsitis; elytris nigris humeris apicibusque rufis, vel totis rufis, punctato-striatis, interstitiis punctulatis; corpore subtus fulvo-pubescente; pedibus nigris, tarsis rufescentibus. Long. corp. lin. 3—3½.

Male. Black, glossy, robust: clypeus emarginate, punctate-rugose in front and in a less degree behind; the margin is elevated; the surface is unequal; there is a large central tubercle on the crown, and on each side a minute and almost obsolete one, being an elevated portion of a ridge that runs behind the central tubercle, and bends obliquely to join the margin before it reaches the hinder angle, which is distinct, rounded, and finely ciliated: base of the antennæ rufous; club clothed with a changeable fulvous or slaty pubescence: thorax convex, approaching to globose, widened at the middle, considerably broader in front than the clypeus, and behind than the base of the elytra, divided by a nearly obsolete middle line which is most discernible at the base, finely and somewhat distantly punctured on the disc, but becoming more thickly and distinctly punctured on the sides, a number of larger punctures being intermixed with those of smaller size; the lateral margins are finely ciliated with fulvous hairs arising from the breast: mesosternum with a large, deep, lozenge-shaped, and distinctly punctured depression: scutellum punctured at the base, smooth at the apex: elytra convex and black; the apex and sometimes the base and the shoulders, and even the whole elytra are red; they are punctate-striate, narrowed at the base, compressed before the middle, expanded towards the apex, and about as broad as the thorax; the interstices are flattish, minutely and distantly punctured; the punctures increase in size and number at the apex: body clothed beneath with fulvous pubescence, more particularly on the prothorax, the sides of the breast and the apex of the abdomen: legs black; femora,

especially the anterior, fringed with fulvous pubescence; tibiæ finely ciliated, their tips sometimes piceous; tarsi rufescent.

Var. β. Aph. ericetorum, MSS. olim. *Female.* Smaller and differently shaped, being broader behind and gradually narrower to the apex of the head; posterior angles and tubercles of the clypeus less distinct; thorax less convex; body beneath more thinly pubescent: thorax subquadrate, widest and as broad as the elytra behind, somewhat parallel on the sides, narrower but wider than the clypeus in front; it is thickly and distinctly punctured throughout with a mixture of large and small punctures which are rather more crowded on the sides, the former predominate.

Var. β. The size of the female, and having the thorax of the male punctured nearly like that of the other sex. Rachills, Dumfries-shire, *Rev. W. Little*; on the heaths of Berwickshire, *J. H. Var. β.* Prestwick Car, Northumberland, *J. H.* May to July.

The Rev. W. Little has recently informed me that he has had this species in his possession for several years, and having sent specimens thereof to Mr. Stephens, he returned them with the name "*Lapponicus.*" Gyllenhal has an *A. Lapponum,* but not being able to ascertain what its characters are, or what is the origin of Mr. Stephens's name, I have, with Mr. Little's concurrence, adhered to that by which I had designated my specimens in consideration of the upland tract of country which they inhabited.

Obs. As the sexual distinctions in *Aphodius* have been little attended to, I may state the process by which I became convinced of the propriety of uniting these apparently distinct insects. I had often been unable to account for *A. terrestris* having a thorax more dilated and globose in some specimens than in others, and bringing both these states into a comparison with my *A. subalpinus* and *A. ericetorum,* I found that the globose thorax was combined with a more sparingly punctured disc and a strong development of the frontal tubercles, but that a crowd of punctures was distinctive of a narrow thorax, and that along with this modification the tubercles of the clypeus underwent a diminution in size. Referring to *A. Fossor,* in which the sexes were known, I found that the punctured thorax and less evident tuberculation of the clypeus was a female character, while the male along with its dilated thorax had, as was the case with the species under review, a decided superiority in size. I had no longer any doubt that my *A. ericetorum* was a variety of *A. subalpinus.* Applying the principle thus obtained to other species, it appears to hold pretty generally among species in which the puncturing of the thorax is not particularly dense. *A. erraticus,* which belongs to Mulsant's genus *Colobopterus,* is in the latter condition. As an additional instance of the former, *A. sordidus* may be cited. In the male of this species the thorax is dilated, the disc is nearly

destitute of punctures, and the sides carry only a few; in the female the thorax is subquadrate, the punctures are more thickly disposed upon the sides and likewise scattered over the disc; the male is distinctly tuberculated, while the clypeus in the female is almost smooth. It may also be remarked, with reference to *A. terrestris* and *A. melanopus*, that the larger the specimen the more obsolete becomes the puncturing, and the number of punctures and their size augment in proportion as it approaches nearer to the size of the female. Thus also we have, in the specimens of *A. subalpinus* from Prestwick Car, which are of the female size, a combination of the male and female characters, a result that may have been produced by their becoming dwarfed towards the limit of their geographical range. In *A. melanopus* I find that the character of the female thorax goes to oppose a portion of the specific character as drawn from the male, Mr. Stephens having described that species as having the thorax rather finely and sparingly punctured. Being in possession of a series of this species, I shall venture to point out its characters with a slight detail, to compare with that author's description.

Aphodius melanopus, *Kirby*.

Steph. Ill. Mand. iii. 198. *Ib.* Manual, No. 1292.

Niger, nitidus, clypeo antice rugoso, postice læviore punctis minutis, tuberculis tribus, duobus lateralibus antice linea curva conjunctis, tuberculis in feminis minutis vel totis obsoletis, thorace maris subrotundato tenue punctulato, feminæ subquadrato punctis frequentioribus majoribusque, utriusque linea media longitudinali leviter depressa antice evanescente, "elytris piceo-nigris apice pallidiore, punctato-striatis," interstitiis parum elevatis, punctis interstitialibus perminutis, corpore subtus parce fulvo-pubescente, pedibus nigris, tarsis dilutis. Long. corp. lin. 2—2½.

My specimens were taken at Prestwick Car in April, in company with Mr. T. J. Bold of Newcastle.

Aphodius uliginosus, *Hardy*.

Niger, nitidus, clypeo tuberculis tribus instructo, lateralibus minutis, in femina omnino obsoletis, thorace sparsim punctato, angulis posterioribus rufis, elytris punctato-striatis, piceis, humeris apicibusque rufis, pedibus nigris vel piceis. Long. corp. lin. 1¾—2.

Black, shining: clypeus narrower in front and slightly emarginate; hinder angles rather distinct, finely and somewhat distantly punctured, bearing in front a very indistinct bent ridge before which the surface is slightly depressed; there are three tubercles on the crown, but excepting the middle one they are very faint, and all three are obsolete in the female; edge of the clypeus usually red: antennæ rufous at base; club black or piceous with ashy reflections: maxillary palpi piceous: thorax as broad as

the base of the elytra, subquadrate, narrower in front, and having a slight rise on the middle of each side; the front angles are slightly projecting; the hind angles are rufous; the anterior and lateral margins are dispersedly punctured with a mixture of coarse and fine punctures, the former are narrowly, the latter indefinitely rufous or piceous; the base is slightly and obliquely truncate on each side: breast behind the anterior legs obscure, with a very indistinct opake middle line: mesosternum broad, punctured, and with a shallow depression: scutellum depressed and punctured at the base, smooth at the tip: elytra piceous, shining and polished, nearly parallel; shoulders somewhat prominent, of a bright red, and the entire base is also sometimes reddish; the tip has two red dots or fasciæ, or is indefinitely red; it is punctate-striate, the striæ are somewhat deep, the interstices are apparently smooth, but beneath a lens they are indistinctly subrugulose: body beneath very sparingly clothed with fulvous pubescence: femora and coxæ black; femora fringed with a slight pubescence; tibiæ piceous; posterior tibiæ scarcely dilated with subequal teeth; tarsi ferruginous, sometimes entirely piceous.

In marshy places on the Berwickshire heaths, and at Prestwick Car, Northumberland, *J. H.*; Tenby, South Wales, *T. V. Wollaston, Esq.* May to July.

I first took this species in Berwickshire in 1845, and recorded it in the 'Berwickshire Naturalists' Club's Proceedings' as *A. granum*, deeming that in the tuberculated specimens I had discovered the male of that species. I again found it at Prestwick Car in the spring of 1846, and Mr. Wollaston having about the same period taken a fine series of it in Pembrokeshire, kindly pointed out my mistake.

Obs. From *A. granum*, to which it bears a close resemblance, this species is primarily distinguished by the tubercles with which the male is beset; and the red humeral and apical spots or fasciæ furnish a constant character in all the specimens of *A. uliginosus* that I have examined. *A. granum* is generally larger, has a broader and more distinctly punctured clypeus, the thorax also is broader and rounder as seen from beneath; the elytra are relatively shorter and more tapering at the tips; the posterior tibiæ are broader at the tips and more deeply dentate, and the spines of the tibiæ are more distinct than in *A. uliginosus*. The under surface of *A. granum* is almost glabrous, and on that part of its breast which is behind the base of the anterior legs, there is a very distinct minutely punctured and shining longitudinal line, but this part in *A. uliginosus* is quite opake. The mesosternum in *A. granum* is rather narrow, and the central depression is more lengthened, deeper, and less distinctly punctured than in *A. uliginosus*.